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ABSTRACT

A nontechnical essay explores the dimensions of the 1970's decline in the market for educated manpower, examines the likely causes of the sharp turnaround from previous boom conditions, and considers the possible period over which the market will remain depressed and the broad societal impacts of the decline in the economic value of college training. It deals only briefly with several related topics such as differences in the market for blacks and whites, men and women, and among various fields. It is concluded that, on the positive side, there may be a substantial decline in the formalistic use of schooling as a credentialing or screening device. On the negative side, the failure of relatively many educated persons to achieve their career goals, and the possible failure of others to find ways of improving their position outside the educational sector, could produce a disgruntled and discouraged attitude among a large share of the population, with potentially dangerous consequences. (Author/MSE)

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An Occasional Paper of the Aspen Institute for Humanistic Studies
Program on Education for a Changing Society

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The Declining Economic Value of Higher Education and the American Social System

Richard B. Freeman

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An Occasional Paper of the Aspen Institute for Humanistic Studies
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THE DECLINING ECONOMIC VALUE OF HIGHER EDUCATION AND THE AMERICAN SOCIAL SYSTEM

by

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FOREWORD

The Program on Education for a Changing Society, one of seven thought-leading-to-action programs of the Aspen Institute for Humanistic Studies, has been based on two assumptions. The first is that the impetus for change in educational institutions, from the preschool through the university, is more likely to derive from changes in the wider society than from forces within the institutions themselves. Educational policy must be formed in concert with other aspects of public policy and program development, such as taxation, housing, pensions, and income transfers, as well as research and training. The second assumption is that current definitions of "education" may need to be changed.

These two assumptions guided the selection of topics to be analyzed by participants of the program and also guided the choice of procedures to be used. The program sought to identify those areas where there may be a connection, or "fit," between the possible changes society will undergo in the late 1970s and 1980s and the capacity of educational institutions at the federal, state, and local levels to play a role in these changes. It is the goal of the program to propose action to be taken in this area during the 1977-90 period.

For the first phase of the program, topics to be analyzed were chosen that met the following criteria:

a. There should be a clear connection between the topic under consideration and the current broad definition of "education";

b. There should be a reasonable possibility that specific proposals concerning the topic could be translated into action by state and/or federal authorities and public and private institutions;

c. There should be a reasonable possibility that action proposed as a result of the Program on Education could be effective before the end of the 1977-90 period.

Initially, the program focused on two general categories: (1) The Social Context of Educational Policy, and (2) Finance and Governance of Education. Although a separation was necessarily made between pre-collegiate and postsecondary levels of education for some of the topics in the categories, an effort was made to develop information and recommendations that provide links among all levels of education. This effort included the production of a set of background policy papers to provide a basis for analyzing recent experience and/or for outlining oncoming social and education issues in a format usable by program participants. These papers were prepared by scholars and education policy commentators, and were first reviewed by peers of the authors in small group meetings during the spring of 1975. Then the revised papers (included in this series) were used as the basis for two workshops held in Aspen, Colorado, in July 1975. The titles of these papers are:

THE DEMOGRAPHIC CONTEXT OF EDUCATIONAL POLICY PLANNING by Peter A. Morrison of the RAND Corporation

EDUCATIONAL INDICATORS AND EDUCATIONAL POLICY by Thomas C. Thomas and Meredith A. Larson of Stanford Research Institute

A DEVELOPMENTAL PSYCHOLOGIST LOOKS AT EDUCATIONAL POLICY: OR THE HURRIER I GO THE BEHINDER I GET by Helen L. Bee, a developmental psychologist

STUDENTS, SCHOOLS, AND EDUCATIONAL POLICY: A SOCIOLOGICAL VIEW by Sarane Spence Boocock of The Russell Sage Foundation

THE DECLINING ECONOMIC VALUE OF HIGHER EDUCATION AND THE AMERICAN SOCIAL SYSTEM by Richard B. Freeman of Harvard University

THE NOT-SO-STEADY STATE OF GOVERNANCE IN HIGHER EDUCATION by Donald M. Stewart of the University of Pennsylvania

GOVERNANCE OF ELEMENTARY AND SECONDARY EDUCATION by Michael W. Kirst of Stanford University

The authors, selected reviewers, and other program participants representing different education constituencies had a double task at these workshops: to criticize the documents and to comment on their implications for change.

The subsequent work of the program will be the preparation of statements of policy implications and proposals for action based upon the conclusions reached by the 1975 workshops. These statements and proposals will be presented in a form that could serve as the basis for policies and programs for state and local governments, private institutions, the Congress and federal agencies, as well as new intergovernmental arrangements. Recommendations will be based on a series of policy papers prepared during 1976 on such topics as non-educational policies to advance educational goals; intergovernmental planning and policy coordination; educational implications and possibilities of collective bargaining; recurrent education and public policy; school site management; staff development strategies; testing and public policy issues; and the role of the state in higher education. The director and staff of the Program on Education plan to be available for consultation with appropriate authorities on all policy alternatives and proposals for action. It is hoped that the recommendations and related materials will be ready by the late fall of 1976.

Francis Keppel
Director
Program on Education
for a Changing Society

THE DECLINING ECONOMIC VALUE OF HIGHER EDUCATION AND THE AMERICAN SOCIAL SYSTEM

For decades, education has been a major contributor to socioeconomic advance in the U.S. and an integral part of the American dream of success. Investments in schooling have provided individuals with upward social mobility in the form of greater incomes and job status and have provided the nation with the qualified manpower needed for economic growth. The perceived value of education has induced public and private decision makers to allocate an increasingly large share of gross national product (GNP) to schooling, making a college education a reality for millions.[1] Economic analyses of the pecuniary benefits and costs of schooling have almost uniformly supported the prevailing orthodoxy that "the more schooling, the better." Treating education as an investment in "human capital" comparable to an investment in physical assets, human capital analysts found that grade school, high school, and college training had high rates of return, justifying expansion.[2] Despite the growing educational attainment of the work force, there was little indication of a decline in the relative economic position of the highly educated.[3]

Developments in the early and mid-1970s have raised serious questions about the continued validity of the traditional view of education and society. For the first time in recent history, the job market for educated workers was out of kilter. Incomes, employment opportunities, and career paths of college graduates were substantially depressed relative to the past. Many young educated workers had trouble obtaining the level of work associated with their schooling. But more strikingly, perhaps, was the fact that for the first time in recent history, the proportion of young men choosing the highest level of education available to them dropped precipitously.

How sizable is the downturn of the 1970s in the labor market for educated manpower? Will depressed conditions continue into the future, or will the past strong market be restored shortly? What are the potential impacts of a depressed job market on the educational sector and on the role of schooling in society? These questions constitute the subject matter of this essay, which seeks to evaluate, within the limits of available data and knowledge of market processes, the changing value of education in the U.S. and its consequences for society. The essay explores the dimensions of the 1970s decline in the market for educated manpower, examines the likely causes of the sharp turnaround from previous boom conditions, and considers, albeit speculatively and tentatively, the possible period over which the market will remain depressed and the broad societal impacts of the decline in the economic value of college training. The essay deals only briefly with several important related topics, such as differences in the market for blacks and whites, men and women, and among various fields. The work is nontechnical, using statistical results obtained in other studies. (A more complete analysis of the changed economic rewards to a college education is given in R. Freeman, *The Overeducated American* [New York: Academic Press, 1976]. The situation of black graduates is covered in detail in R. Freeman, *Black Elite* [New York: McGraw-Hill, 1976]. The reader is referred to those volumes for detailed documentation and data analysis.)

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[1] Between 1951 and 1969, the percentage of young men (18 to 19) enrolling in college rose from 20.4 percent to 44.0 percent. In the former year, 336,000 were enrolled, in the latter, 1,397,000. (See U.S. Bureau of the Census *Current Population Reports*, Series P-20, various editions.)

[2] High rates were found by G. Becker in *Human Capital* (New York: N.B.E.R., 1964) and W. L. Hansen, "Total and Private Rates of Return to Investment in Schooling," *JPE* (April 1963). Also see, T. W. Schultz, *The Economic Value of Education* (New York: Columbia University Press, 1963).

[3] Griliches, Zvi, "Notes on the Role of Education in Production Functions and Growth Accounting," in W. L. Hansen, ed., *Education, Income and Human Capital* (New York: N.B.E.R., 1970).

The Declining Value of Higher Education: How Great a Problem?[4]

Give me your evidence, said the King, and don't be nervous or I'll have you executed on the spot.

Lewis Carroll

Because of the way in which the market for educated workers operates, an analysis of the 1970s downturn in this market should focus on two indicators of market conditions: salaries, which are especially good measures of the college job market because college-educated manpower rates are set directly by supply and demand rather than, as in unionized blue-collar markets, by collective bargaining; and job opportunities, broadly defined as the availability (number) of positions at given salaries in the area for which an individual has been trained. Opportunities are important because educated workers invariably find some sort of employment, making the quality of jobs, not the number employed or unemployed, the principal nonprice mode of adjustment. In addition, however, some attention must be given to other indicators of labor market conditions, such as rates of unemployment. To minimize the dangers of misreading cyclic or temporary changes in employment conditions in the 1970s for the type of long-run climacteric which merits serious concern, the situation of the seventies is continually compared to that of earlier decades.

The most sensitive indicator of the changing economic value of human capital, given great stress in the paper, is the economic position of young persons, particularly new college graduates and similarly aged high school and other personnel. Economic changes are likely to show up most dramatically and rapidly among new graduates for several reasons. First, nearly all new graduates but only few older workers are on the active job market in a given period, making the position of the former more immediately sensitive to fluctuations in the supply-demand balance. Second, firms will generally find it easier to alter hiring patterns for new personnel and starting salaries than to adjust the position of experienced personnel already in positions – transactions costs are greater in the latter case. Third, the regular hunt for college and high school graduates that operates each spring and summer is likely to provide enterprises with more accurate and rapid information about economy-wide developments than intermittent changes in the status of the experienced. A plausible model of strong decision making would have firms alter overall salary patterns in response to signals from the "entry port" of young hires. If this argument is correct, the position of new graduates is a leading indicator of supply/demand conditions, to be followed in time by similar changes for other workers.

The evidence that the labor market for the educated underwent a major, unprecedented downturn in the 1970s is impressive. By all relevant indicators, the economic status of college graduates deteriorated relative to that of other workers, with the employment situation of the young falling exceptionally sharply.

The Earnings of College Graduates

Table 1 shows the remarkable dimensions of the 1970s decline in the real and relative starting salaries of young college graduates. It compares the rate of change in the starting pay of male graduates employed in industry, deflated by the consumer price index, with that of other workers. For a reasonably complete picture of market developments, the table covers science, social science, and liberal arts fields, and graduates with a master's or doctor's degree

[4]Much of the data in this section is taken from R. Freeman, *The Overeducated American* (New York: Academic Press, 1976) and "Overinvestment in College Training?" *Journal of Human Resources* (Summer 1975).

Table 1

Compound Annual Changes in the Starting Salaries of Bachelor's Graduates

Group	1961-69 Period of Relative Market Boom		1969-74 Period of Relative Market Bust	
	annual percent change in salaries	annual percent change minus change in consumer price index	annual percent change in salaries	annual percent change minus change in consumer price index
Accountant	6.0	3.4	4.0	-2.2
Business–general	5.7	3.1	2.4	-3.8
Humanities and Social Science	5.3	2.7	1.1	-5.1
Aeronautic Engineering	4.8	2.2	3.1	-3.1
Chemical Engineering	5.8	3.2	3.8	-2.4
Civil Engineering	5.7	3.1	3.9	-2.3
Electrical Engineering	5.1	2.5	3.2	-3.0
Mechanical Engineering	5.3	2.7	3.5	-2.7
Industrial Engineering	4.7	2.1	3.3	-2.9
Physical Sciences and Math	4.8	2.2	2.1	-4.1
Changes in Annual Earnings of Year-round Full-time Workers	4.7	2.1	6.6*	+0.4

Source: College Placement Council, *Men's Salary Survey*, Bethlehem, Pa. (1962-74), with preliminary data for 1974; U.S. Department of Labor, *Manpower Report of the President* and *Monthly Labor Review* (May 1974); U.S. Department of Commerce, *Survey of Current Business* (July edition).

*1974 figure was estimated by percentage change in average hourly earnings of all private production workers from March 1973 to March 1974.

as well as those with a bachelor's degree. What stands out in the data is the dramatic fall in the real salaries of new graduates, ranging from 11 percent to 25 percent, depending on field and degree, in contrast to the rough constancy in the real (before tax) earnings of other groups in society. Comparable data for earlier time periods show new college graduates doing better, or at worst about as well as other workers. From 1961 to 1969, for example, humanities and social science graduates enjoyed increases in real pay of 2.7 percent per year, exceeding the rates of gain in average hourly earnings (2.6 percent), annual full-time earnings (2.1 percent) and related wage series. The sharp downward alteration in the salaries of new graduates of the 1970s was a major break with these past economic developments.

Information on the relative income of more experienced college-trained workers presented in Table 2 indicates that the fall in the premium for college-educated manpower was not limited to new graduates, though it was especially pronounced among them. According to the table, the ratio of the income of all college graduates to high school graduates aged 25 and over fell by 9 percentage points and that of college graduates to grade school graduates by 18 points from 1969 to 1973, while the relative incomes of year-round full-time workers, the best available measure of wage rates, dropped by 13 and 25 points, respectively. Because the college work force has become younger over time while the mean age of the less educated has been stable, however, these figures are potentially contaminated by changes in the age of the two groups. To deal with this problem, incomes by age groups are also taken separately in Table 2. The income age data in the table confirm the picture of a decline in relative college incomes, revealing drops in the ratio of incomes ranging from -3.9 percent to -1.5 percent in column 3 and -5.9 percent to -15.6 percent in column 4.

Table 2

Relative Mean Income of Male College Graduates, by Age

Group	Ratio of College Graduate to High School Graduate Incomes			Ratio of College Graduate to Grade School Graduate Incomes		
	1969	1973	Percent Change	1969	1973	Percent Change
All Workers, 25+ Years Old	1.50	1.41	-6.0	2.28	2.10	-7.9
Year-round Full-time Workers	1.53	1.40	-8.8	1.98	1.73	-12.6
Year-round Full-time Workers (by age)						
25-34	1.39	1.23	-11.5	1.69	1.59	-5.9
35-44	1.54	1.48	-3.9	2.12	1.79	-15.6
45-54	1.65	1.50	-9.1	2.18	1.99	-8.7
55-64	1.66	1.61	-3.0	2.19	2.04	-6.8

Source: U.S. Bureau of Census *Current Population Report* Series P-60, "Money Income of Families and Persons in the United States," No. 75, table 47; no. 97, tables 57, 58.

The theory of human capital directs attention to expected discounted lifetime incomes and rates of return to educational investments as the critical measures of the value of schooling. What happened to the rate of return to college education in the seventies?

The answer to this question depends on the time path of *future* incomes that can be reasonably expected for graduates and thus on the weight attached to the 1970s decline in their income as opposed to previous rates of gain. If the reduced salaries of the seventies foretell a continued drop in the income opportunities for the college-trained worker relative to other workers, there will be a sizable drop in discounted lifetime incomes and rates of return. If, alternatively, the turnaround is relatively short run and pre-1970s differentials are restored, the drop will be modest.

I have made several estimates of the potential size of the fall in discounted present values and rates of return. These estimates indicate that the rate of return appears to have fallen by perhaps 2.5 to 3.5 percentage points in the early 1970s. One set of estimates suggests that a private rate of return of 11 percent in 1968 fell to 7.5 percent by 1973. Another set shows a more modest fall in the rate of return from 11.5 percent in 1969 to 8.5 percent in 1974.[5]

Determination of which of these possibilities is more likely requires a rigorous forecast model of the college job market that predicts lifetime incomes – a difficult task given current knowledge of the determinants of longitudinal income profiles. For present purposes, however, it suffices that *all* calculations reveal a sharp unprecedented fall in the return to the college investment.[6] There is no gainsaying that there was a sizable dip in the economic value of going to college in the late 1960s and early 1970s.

[5]These estimates are from R. Freeman, *The Overeducated American* (New York: Academic Press, 1976), Table 1 and Appendix A, and R. Freeman, "Overinvestment in College Training?" *Journal of Human Resources* (Summer 1975), Table 4.

[6]The figures used in my computations differ, it should be noted, from comparable estimates of the Bureau of Census based on *Current Population Report* data (Series P-60, No. 62). Series P-60 estimates use curve fitting extrapolation to obtain incomes for young men, while my estimates are based on actual figures reported in the 1970 Census of Population, estimated for 1972 and 1974 on the hypothesis of a proportionate shift in life-cycle earning streams. The Series P-60 extrapolations yield relatively higher incomes for young college men than reported in the 1970 Census, with college men doing markedly better than high school men at age 22, for example, in the former but not in the latter figures. Because discounted incomes and rates of return depend critically on incomes received early in the work life, this difference is substantive: Series P-60, No. 62, yields higher discounted lifetime incomes and rates of return for college training than does the 1970 Census of

(Continued on page 4)

Employment Opportunities

Parallel to the dip in the economic value of going to college was a concurrent deterioration in employment opportunities. This deterioration forced an unprecedented number of college graduates, particularly those starting their careers, into noncollege-level jobs, jobs outside their areas of study, or unemployment. Figure 1 examines the dimensions of this 1970s drought in employment opportunities. It graphs the ratio of professional and managerial "college-level" jobs to total jobs in the economy and shows the ratio of such jobs to the stock of graduates, perhaps the best measure of the availability of high-level employment to individuals.[7] For historic perspective, Figure 1 treats the entire post-World War II period.

According to the figure, the professional/managerial share of the work force, which had been growing rapidly since the Census Bureau first began to collect college occupational statistics in 1870, leveled off in the 1970s, despite continued increases in the number of college graduates. In 1950, 18.3 percent of jobs were in "college-level" categories. In 1969 it was 24.0 percent, and in 1974, the figure was 24.8 percent. Adjusted for the fact that the economy entered a major recession in the mid-1970s, the data tell an even more dramatic story, for typically the high-level share of employment rises when unemployment rises. Had the economy created professional and managerial jobs in the 1969-74 period at the same rate as in the past, 27.5 percent rather than 24.8 percent of the work force would have been so employed. With educational attainment rising over the entire post-war era, the number of available good jobs per graduate decreased, at a modest rate in the 1950s and 1960s but at a rapid pace in the 1970s. In 1952, 18.4 percent of American workers were professionals or managers while 7.9 percent had a college degree, which implies that there were 2.33 "college-type" jobs available per graduate worker; in 1969 prior to the downturn, with the handful of graduates rising to 12.6 percent, the ratio of college-level jobs to workers dropped to 1.90. Finally, as a result of the slowdown in the growth of professional and managerial jobs in the 1970s, the availability of high-level positions per college graduate plummeted even further: in 1974, the college graduate share of the work force had risen to 15.0 percent, producing a ratio of jobs to workers of just 1.65.

With the share of high-level jobs steady in the 1970s and continued expansion in the college-educated work force, there was a marked worsening in types of jobs obtained by graduates, particularly those just starting their careers. First, an exceptionally large number of graduates who entered the market in the 1970s were forced into jobs outside the professional and managerial areas. Over 30 percent of the male graduates of 1972, for example, and 25 percent of the female graduates of that year ended up employed in nonprofessional, nonmanagerial jobs. By contrast, just slightly over 10 percent of the graduates in the class of 1958 were so employed at a similar period in their working life. Second, many graduates reported that they were employed in positions outside their fields of study. Twenty-four percent of employed male graduates and 22 percent of employed female graduates in the class of 1968 ended up in areas "not at all related" to their college studies, compared to about 10 percent of the starting graduates a decade or so earlier (class of 1958). The absence of jobs rather than the existence of better opportunities in other fields was cited by the 1970s

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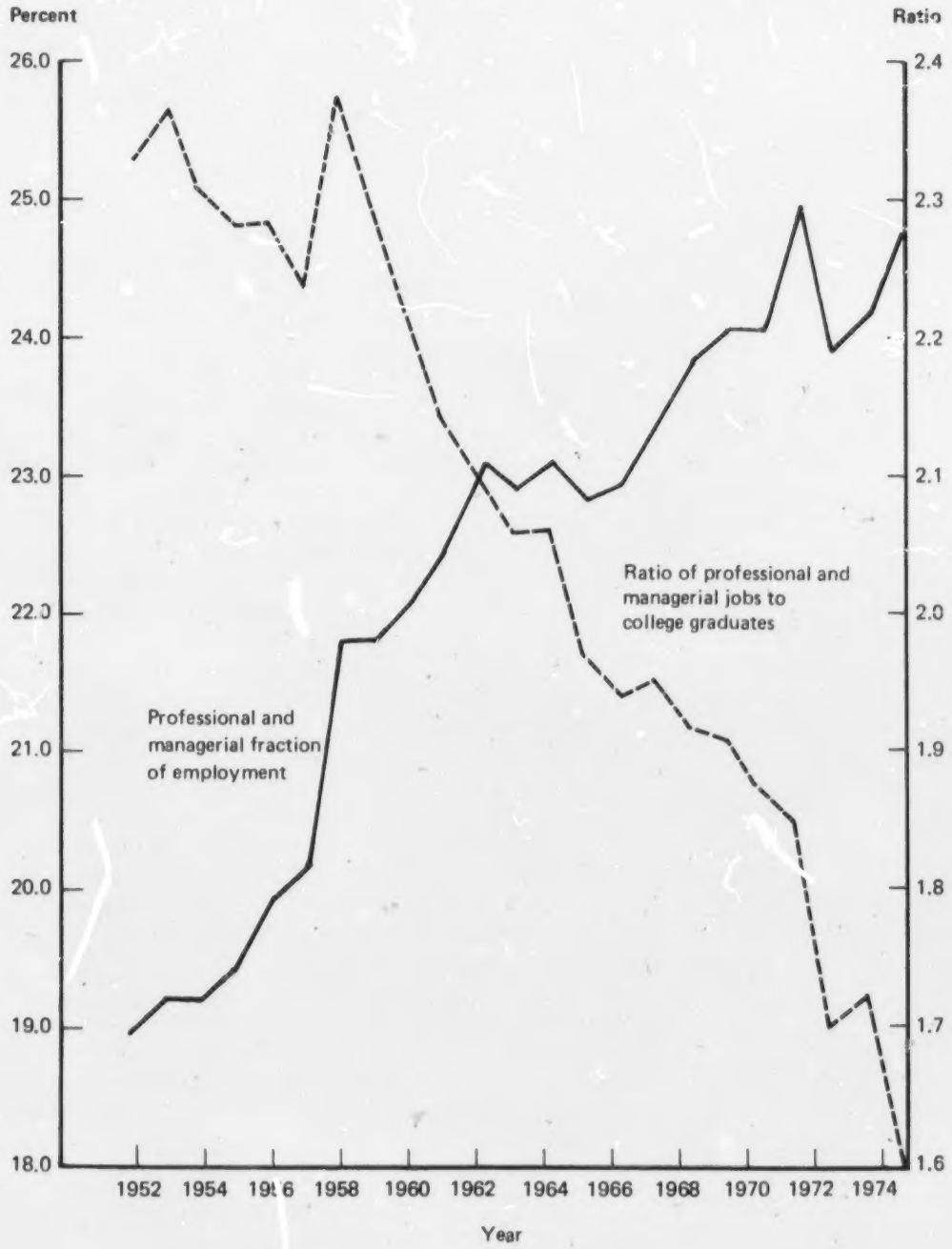
6 *(Continued)* Population. While the level of discounted incomes and rates of return depend on estimated procedures, the *change* in the value of college training in which men are primarily concerned does *not*. The data from Series P-60, No. 62, given below yield incomes discounted at 7 percent at age 18 in 1972 dollars of:

	1969	1972
High School Graduates	100	104
College Graduates	137	135

which reveal a $6,000 decline in the difference between the streams (from $37,000 to $31,000) or $5,300 in 1969 dollars. This implies a noticeable drop in the rate of return.

7 Not all professional and managerial jobs are of "college-level" and some other jobs may offer great returns to such training. These data are to be viewed as crude indices of relative changes, not as measures of job offers per worker.

Figure 1
College-Level Jobs



Source: R. Freeman, *The Overeducated American* (Academic Press, 1976), Figure 4.

graduates as the principal reason for working in jobs not directly related to fields of study – the opposite reason to that given by the class of 1958. One-third of male graduates and nearly two-thirds of female graduates working outside their field could not find a job in their field in the early 1970s, compared to 10 percent and 13 percent in the early 1960s; less than one in five men and virtually no women moved to new areas because of better opportunities in 1971, in contrast to about three in ten in the 1958 graduating class.[8]

Graduates with job experience also ran into difficulties getting good jobs in the declining market, with a smaller but still noticeable fraction ending up in nonprofessional, nonmanagerial positions. Between 1969 and 1974, the share of men with four years of college working as professionals or managers dropped from 83 percent to 79 percent while the percentage of women graduates so employed fell from 81 percent to 75 percent. At the opposite end of the spectrum the relative number of male graduates working as salespeople increased by 50 percent and the proportion of female graduates employed in clerical positions by 100 percent.[9]

College-educated workers, in particular young college graduates, had an increasingly difficult time obtaining jobs in the seventies. In October 1972, the rate of unemployed for graduates of the class of 1972, for example, stood at 9.3 percent, far in excess of the national average for workers (5.6 percent) and above that for high school graduates of about the same age (7.7 percent). Persons who had majored in the humanities or social sciences faced even higher unemployment rates of 15.4 percent and 16.0 percent, respectively. Although less dramatic, there was an analogous worsening in the rate of unemployment among all college graduates and among those employed in professional and managerial jobs. In 1968, 0.7 percent of college graduates, 1.2 percent of professionals, and 0.8 percent of managers lacked employment compared to an economy-wide average of 3.1 percent. Between 1968 and 1974, these rates rose to 2.3 percent (college graduates), 2.3 percent (professionals), and 1.8 percent (managers) while the overall rate increased less rapidly to 5.6 percent. Finally, the length of unemployment among college graduates in the 1970s exceeded that of other workers.[10]

Responses to the Depressed Market

The response of young persons to the change in market opportunities outlined provides important evidence on its perceived significance and impact on society. This can be seen in the proportion of the young electing to go on to college and fields of chosen study.

Figure 2 contains the basic evidence on the impact of the 1970s downturn in the college job market on the level of investment in higher education. It depicts the proportion of 18- to 19-year-old and 18- to 24-year-old men enrolled in college from 1951 to 1974, and the percentage of men from specific high school graduating classes enrolled as freshmen in the following year. What stands out in the data is the sudden sharp fall in the relative number of

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[8]The 1972 data are from the Bureau of Labor Statistics Special Labor Force Report 169, *Employment of Recent College Graduates*, Oct. 1976, Tables C, 3. The 1958 data are from National Science Foundation, *Two Years After the College Degree* (NSF 63-26), 1963, Table 32, A-35, A-37. The precise derivation of the statistics is given in R. Freeman, *The Overeducated American*, Chapter 1. Some adjustments were needed for comparability.

[9]U.S. Bureau of Labor Statistics, *Educational Attainment of Workers*, March 1974 and March 1969, 1970 Special Labor Force Report No. 175, Table I, No. 125, Table I.

[10]The unemployment data in this paragraph on the class of 1972 are from the Bureau of Labor Statistics, Oct. 1972, Special Labor Force Report No. 169, Table 1, p. 34; the data on high school graduates are from the Bureau of Labor Statistics, *Employment of High School Graduates and Dropouts*, Oct. 1971, Special Labor Force Report No. 155, Table A, p. A-10. I have used the figure for the high school classes that graduated before 1970 for approximate age comparisons: The U.S. Department of Labor, *Handbook of Labor Statistics 1974*, Table 66, p. 156, was used for 1969 rates by occupation and Table 60 for totals in October 1972. The *Monthly Labor Review*, April 1975, Table 4, p. 94, was used for 1974 rates by occupation and the total rate. (The Bureau of Labor Statistics, *Educational Attainment of Workers*, March 1968, Special Labor Force Report No. 103, Table B, p. A-6, was used for data on all college graduates; and March 1974, Special Labor Report No. 175, Table B, p. A-10, was used for data on all college graduates.

male college students, which began in 1969 (1968 in the high school graduate data), when the labor market turned down, after more than a decade of substantial increases. In 1969, 44.0 percent of 18- to 19-year-old male civilians enrolled in college, 35.2 percent of 18- to 24-year-old males were students and 60 percent of new high school male graduates elected to become freshmen (down from 63 percent in 1968). Five years later, just 33.4 percent of 18- to 19-year-old males, 27.8 percent of 18- to 24-year-old males and 49 percent of male high school graduates went on to college – remarkable declines of 10.6, 7.4, and 11 percentage points, respectively. For the first time in American history, the upward trend in educational attainment among young men was reversed: men in the high school class of 1974 were less likely to obtain further education than those in the class of 1958. The situation for women changed less drastically: the relative number roughly stabilized in the 1969-73 period, after increasing rapidly in the previous decade. While other factors were at work in the period, such as changes in draft laws, tuition charges, and changes in the overall state of the economy, the major cause of the unprecedented drop, according to multiple regression analysis, appears to have been the depressed labor market.[11]

Did young persons from high- as well as low-income families forego college in the early 1970s or was the decline concentrated among those from less advantaged backgrounds? Surprisingly, perhaps, U.S. Bureau of Census evidence suggests that the depressed market weakened the "go to college norm" in all social strata. The proportion attending college full-time fell by 20 percent among those from families with incomes below $3,000, by 33 percent among those with incomes from $7,500 to $9,995, and fell substantially, by 20 percent, among those from homes with incomes of $15,000 or more. The fall in enrollments from the middle and upper classes represents a major change in the traditional pattern of intergenerational mobility: for the first time, large numbers of young persons appeared likely to obtain less schooling and potentially lower occupational status than their parents.[12]

Some Exceptions

Not all economic and social groups enrolled in college in smaller numbers in the 1970s. Young blacks, who first began attending college in large numbers in the sixties, *continued* to increase their representation in higher education in the 1970s, substantially narrowing the black/white gap in enrollments. In 1969, 236,000 black men were in college; in 1974, there were 422,000, bringing the black share of male students from 5 percent to 9 percent. As a percentage of 18- to 19-year-old college enrollments, black male enrollments increased slightly over the same period, from .23 to .25, despite the overall drop in the proportion of young men in college.

The differential pattern of black and white college enrollments is readily attributable to differences in the labor market incentives and returns to schooling. While opportunities deteriorated and returns to college fell in the 1970s for white graduates, the position of black graduates appears to have improved significantly. The share of black graduates obtaining managerial jobs – from which blacks had historically been excluded by national corporations – jumped from 5 percent in 1964 to 11 percent in 1969, and then to 19 percent in 1973, while white representation in management during that period was relatively unchanged.

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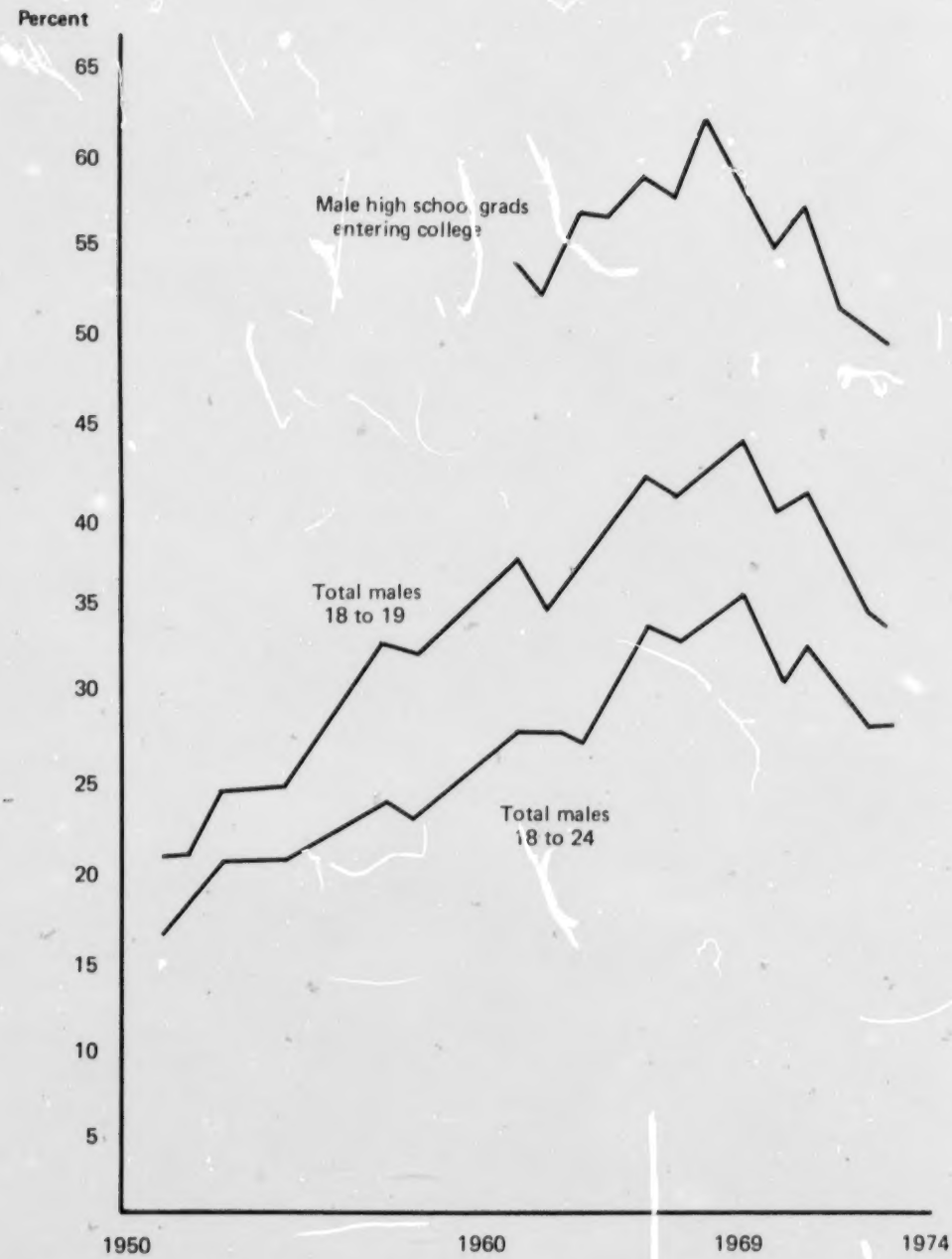
[11] See R. Freeman, "Overinvestment in College Training," *Journal of Human Resources*, Summer 1975.

[12] The evidence in this paragraph is given in R. Freeman, *The Overeducated American*, Table 2. The basic data are from U.S. Bureau of the Census Current Population Reports, *School Enrollment*, Series P-20, Nos. 206, 272.

Figure 2
Proportion of Young Men Enrolled in College



Source: For high school graduates, U.S. Department of Labor, Bureau of Labor Statistics, *Special Labor Force Report 155*, Table 3.

For total males 18 to 19 and 18 to 24, U.S. Bureau of Census, *Current Population Report Series P-20*, Washington, D.C. (various editions).

Incomes of black male college graduates increased greatly, too – the gain was 104 percent in the 1960s, compared to a gain of 67 percent for white graduates. In the 1969-73 period of market decline, black graduate incomes rose by 7.2 percent per annum while white graduate incomes increased by only 4.8 percent per annum. Perhaps most importantly, the starting salaries of black college graduates rose to parity with that of whites in the 1960s and early 1970s, after decades of substantially lower increase opportunities. Data from *Current Population Survey Reports* (March 1974) shows that black male college graduates aged 25 to 29 actually earned a bit more than comparable whites. By contrast, black high school graduates still obtained much less than white high school graduates. While estimates of the rate of return to black college investments are difficult to make as there is considerable uncertainty about whether or not parity among the young will be maintained, even pessimistic calculations suggest higher rates than for whites in the 1970s – up to as much as 5 or 6 percentage points above those of white men. Note, however, that the high return to black college men reflects the poor income prospects of black high school graduates more than the "great" prospects of black college men.[13]

College enrollments also increased among another group – men and women, aged 30 to 34 or 35+, who normally attend college in relatively small numbers. In 1969, 536,000 persons aged 30 to 34 enrolled in college; in 1974, 720,000 enrolled. Only 5.1 percent of men in that age bracket attended in the former year compared to 6.5 percent in the latter. As for those 35 and over, between 1972 (when data was first obtained for this age group) and 1974, enrollments jumped by 30 percent to about 1 million.[14] The majority of these persons attended part-time, as might be expected given their likely family responsibilities, and enrolled in vocational programs designed to help them in their careers.

There are several factors behind the movement of older persons going or returning to college: increased recognition of the need for retraining in fields of rapid technological progress, which gives companies an incentive to provide special programs and funds for occupational education; declines in the number of children per family, which frees time for other activities; special recruitment efforts by colleges hard-pressed for students; other possible secular changes in values toward education; and the short hours and increased unemployment of the recession years 1974-75, which make it less costly to switch from work to school activities. To the extent that long run rather than cyclical factors underlie the observed changes, the rise in adult enrollments may portend a major change in the age distribution of college students, particularly in the 1980s, when the number of the young will decline for demographic reasons. An enormous movement of adults into higher education, it must be stressed, will be needed to save the college and university systems from the forecasted fall in student population. But even with the increases of the 1970s, a strong and continued increase in older adult enrollment must be viewed as unlikely, though our knowledge of the enrollment decisions of older persons is currently too limited to permit any clear-cut conclusions.

The enrollments of women also did not decline in the early 1970s, but rather stabilized as a fraction of the population of college age. In part, the relative stability in the proportion of young women going to college reflects the fact that economic opportunities did not decline for them in the early 1970s. The ratio of incomes of college graduate women to high school graduate women aged 25 to 34 remained roughly stable from 1968 to 1974. In business during that time, the rates of increase in the starting pay of female graduates exceeded that

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[13]The analysis here is taken from R. Freeman, *Black Elite: The New Market for Highly Educated Black Americans* (New York: McGraw-Hill, 1976), Tables 15, 16, 21, 22, and Chart 1, and R. Freeman, *The Overeducated American*, Fig. 26.

[14]The data come from U.S. Bureau of the Census Current Population Reports, Series P-20, *School Enrollment*, No. 278, Tables 4, 5; No. 206, Table 1; and No. 260, Table 19. Figures for older persons are also given in the Bureau of Labor Statistics, *Going Back to School at 35*, Special Labor Force Report No. 159, *New York Times*, April 20, 1975, p. 9.

of males. Traditionally male careers opened up to women and changes in attitudes induced many into such areas as law, medicine, business, architecture, and the like where few women graduates worked in past years. But because the labor market for teaching, historically the most important occupation for female graduates, has deteriorated and is likely to continue to decline into the 1980s, the prospects for female graduates still appear problematic. The key issue is whether new opportunities in primarily male fields increase by enough to counterbalance the decline in teaching opportunities, and this is by no means clear.[15]

Specific Markets and Forms of Training[16]

The form as well as the level of investment in higher education changed greatly in the depressed market as different occupations and types of training were differentially affected by the downturn. At the bachelor's level, for example, despite the overall "surplus" of new college workers, engineering enjoyed a strong job market in 1974-75 because of the relatively small supply of new graduates, the result of the diminished attractiveness of the field in the late 1960s when NASA and related R&D spending declined. Geology, biology, and health professions were less affected by depressed conditions than other science specialties, while accounting and business administration majors had better job chances than social science, humanities, or other physical science and mathematics graduates.

Students responded to these differences by altering their career and field of study plans, shifting – in general – from areas with severe market problems to those offering better employment prospects. Table 3 displays some of the changes in the career plans of first-year men and women who entered college in 1966 and in 1974. The former group (graduates of 1970) presumably made their career plans on the basis of the strong market for graduates in the early 1960s, while the latter reacted to the market decline of the 1970s. The data in Table 3 reveal four important changes. First, not surprisingly, there is an extraordinary drop in the number of graduates expecting to work in academia, either as college professors or as elementary or secondary school teachers. In 1966, for example, 13.4 percent of male freshmen and 35.6 percent of female first-year students intended to teach; in 1974, just 4.5 percent of the former and 12.7 percent of the latter anticipated teaching careers – a sharp reaction to the worsened market for schoolteachers and professors.

Second, there is a large increase among both men and women in the "undecided" category which may be viewed as a further response to rapidly changing market developments. Third, there are additional declines among men in the "Scientist" category and increases in the fraction of agricultural (farmers) and health professions and in "Other" jobs, presumably outside the traditional college-type professions. Finally, note the large relative increases in the proportion of female freshmen intending to have such normally "male-dominated" careers as business people, doctors, lawyers, engineers, farmers, as well as health professionals. Apparently as a result of women's liberation, affirmative action, and related social changes, there were substantial shifts in the career plans of female college students in the early 1970s.

While the table shows a drop from 1966 to 1974 in the proportion of freshmen in engineering, there was a sharp response to the strong market for B.S. engineers between 1973 and 1974. After many years of relative decline, the number of male freshmen in engineering jumped by 20 percent between the fall of 1973 and the fall of 1974. For present purposes what is important is not the specifics of which specialties did better or worse in the period, but the

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[15] For detailed information on the changing position of college women, see R. Freeman, *The Overeducated American*, Chapter 7.

[16] For a detailed discussion of fields, see R. Freeman, *The Overeducated American*, Chapters 4, 5.

fact of substantial diversity.[17]

At the graduate level, two patterns emerged in the late 1960s and early 1970s. First, the economic position of masters' and doctorate specialists, who generally seek work in academia, fell especially sharply due to the weakened job market for teachers, both at the elementary, secondary, and college levels, with a subsequent diminution in the numbers of eligible persons pursuing their studies at the graduate level. Between 1968 and 1971, for example, the ratio of first-year graduate students enrolled for a master's or doctorate degree to bachelor's degree graduates dropped by over 12 percent, from .72 to .63. But, since many graduate students are older persons rather than new degree recipients, these figures do not, of course, mean that 72 percent or 63 percent of the relevant graduating classes actually chose to go on but rather that for every 100 new B.A. or B.S. recipients, 72 (63) persons sought a higher degree. Even at such elite institutions as Harvard, there was a remarkable change in postgraduate study plans. At Harvard, the proportion enrolling for graduate arts and science training dropped from 27 percent in the class of 1966 to 10 percent in the class of 1974.[18]

Table 3

Changes in Freshmen Career Plans in the Declining Market

Distribution of Freshmen by Probable Career Occupations

	Male		Female	
	1966	1974	1966	1974
Business	18.5	17.0	3.3	8.5
College Professor	2.1	0.7	1.5	0.8
Doctor	7.4	6.9	1.7	3.5
Elementary, Secondary Teacher	11.3	3.8	34.1	11.9
Engineer	16.3	8.5	0.2	0.8
Farmer	3.2	6.2	0.2	1.3
Health Profession, Including Nurse	3.2	5.8	11.9	22.7
Lawyer	6.7	5.3	0.7	2.3
Scientist	4.9	2.7	1.9	1.4
Other	15.8	24.5	31.0	26.4
Undecided	5.0	12.3	3.6	12.5

Source: American Council on Education, *National Norms for Entering College Freshmen – Fall 1966, The American Freshmen: National Norms for Fall 1974.*

[17]See R. Freeman, "A Cobweb Model of the Supply and Starting Salary of New Engineers," *Industrial Labor Relations Review* (Jan. 1976).

[18]National data from R. Freeman and D. Breneman, *Forecasting the Ph.D. Labor Market* (National Board of Graduate Education, 1974). Harvard data is from the Harvard University Office of Graduate and Career Plans.

Second, at the other end of the spectrum, the market for graduates from professional schools such as law, medicine, and business was by comparison relatively strong in the period, producing a significant increase in enrollments in those areas. In the brief span of three years, the number of students taking the law school achievement tests doubled, and first-year law enrollments shot up to tax the capacity of those schools. By 1975, however, the large graduating class, which had entered in 1972, shifted the supply-demand balance against new lawyers. Graduate enrollments and Ph.D.s in education dropped, apparently in response to the difficulties in obtaining new positions in that area.

National data on enrollments for five or more years of college suggest that, overall, the depressed job market induced proportionately fewer college graduates in the graduate student age brackets to go on to post-bachelor's study than in the past. In 1968, 792,000 men were enrolled for five or more years of college – 35 percent of graduates less than 35 years of age; in 1973, 886,000 men enrolled for post-bachelor's work, 31.5 percent of the relevant population.[19] Only the demography of the student population – the increased number of persons of college age – kept graduate enrollments from falling in absolute figures.

Noncollege Options

The decline in the income and employment opportunities of college graduates had a mixed effect on the economic options for high school graduates and others who chose not to enroll in higher education. On the one hand, by definition the decline in the relative income of the college trained has meant an improvement in the relative income of the less educated. On the other hand, with a relative surplus of college graduates, opportunities for nongraduates to attain white-collar positions appear to be diminishing. Between 1969 and 1974, college-trained personnel became increasingly important in several major occupations where high school workers had traditionally predominated: sales and managerial work for men, and sales and clerical jobs for women. Estimates of the possibilities of replacing high school workers with college workers as the availability of the latter increases and their wages decrease suggest that this pattern will continue into the future.[20] This is not to say that alternatives to the college route to white-collar jobs do not exist, but merely that the surplus of graduates is likely to make it more difficult for nongraduates to compete for those jobs than in the past.

The Way It Works and What the Future May Bring[21]

To evaluate the potential time period over which the economic value of education will be depressed, it is necessary to examine the operation of the job market for educated workers – to understand the way in which individuals, enterprises, and institutions respond to economic developments and the way in which their behavior interacts in the marketplace. In this section I sketch out what I believe to be the critical elements in the college job market and use the resultant analytic framework to explain the sharp deterioration in the supply/demand balance of the 1970s and to forecast the future. (Formal testing of the postulated behavior and dynamic interactions is given in the scholarly papers referred to in the bibliography.)

There are, I believe, four key elements in the dynamic operation of the market for college graduates:

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[19] Enrollment data was obtained from the U.S. Bureau of the Census, *Current Population Reports*, Series P-20, Nos. 206, 272, with degree data from the same series, No. 194 for 1969 and 1973 estimated from 1972 data.

[20] R. Freeman, "Youth Employment Opportunities: Changes in the Relative Position of College and High School Graduates," in S. Wolfbein, *Labor Market Information for Youth* (Philadelphia: Temple University, 1975).

[21] This section is taken from R. Freeman, *The Overeducated American*, Chapter 3.

1. *Responsive supply behavior on the part of young students.* Contrary to traditional views of student decision making, young persons are – according to recent economic analyses[22] – highly sensitive in their occupational and educational decisions to the state of the job market. In physics, for example, immediately after the success of Sputnik, the proportion of undergraduates and graduate students in the field roughly doubled; by contrast, when the market deteriorated in the late 1960s, despite a near two-fold increase in the total student body, junior and senior physics majors declined from 14,900 (1969) to 11,400 (1971) and first-year graduate enrollments dropped by a third.

Responsive supply behavior appears, too, to be the major cause of the dramatic fall in the proportion of young men currently choosing college: statistical analysis indicated that 95 percent of the variation in the fraction of 18-to-19- or 18-to-24-year-old men in college over the 1951-74 period can be attributed to job market incentives,[23] with other widely noted factors – changes in draft laws, increases in tuition, and the like – apparently playing a minor role. Surveys of students designed to elicit the importance of economic factors in decisions support the responsive supply hypothesis. About two-thirds of both male and female freshmen queried by the American Council of Education, for example, agreed that from their perspective, "the chief benefit of college is that it increases earning power," which is consistent with considerable sensitivity to economic incentives.[24]

The major consequence of responsive supply behavior on the part of the young is that the fraction enrolled and the number of new graduates became critical adjustment mechanisms. With a relatively elastic supply of students to colleges and universities overall and to particular majors, changes in salaries and employment opportunities, like those experienced in the early 1970s, are translated into sizable changes in new college-trained workers.

2. *Long working life.* The fact that most people work for 40 or so years means that the vast majority of college graduates invested in their education and chose specialties years ago, making total supply relatively inelastic even when the supply of the young is highly adaptive to new circumstances. When, as in the 1970s, there are many persons in the cohorts of the young but few graduates in the retiring age brackets, total supply of graduates will grow even if the fraction of young enrolled in college falls. As a consequence, the movement toward a long-run balance of supply and demand for graduates in the entire population will necessarily be slow, permitting disequilibrium to persist for many years. In markets with long-lived factors of production, supply-demand disequilibria are likely to be long-lived also.

Two factors ameliorate the problem of adjusting the total supply of graduates to changed market conditions. First is the fact that younger and older graduates often perform different work tasks, the former doing work directly related to their training, the latter doing more general managerial work. Because of different activities, graduates of different ages may be only moderately substitutable for one another, leading to more or less separate labor markets. As a result, the market for new graduates could improve rapidly if the supply of the young attending college declines at the same time that the total college population grows – the declining fraction of young people going to college may significantly alleviate the market for new bachelor's workers in the next decade. However, persons in the large graduating classes of the late 1960s/early 1970s may suffer from a relative excess of college graduates over their entire lives, creating a significant intergenerational equity problem.

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[22]See R. Freeman, *The Labor Market for College-Trained Manpower* (Cambridge: Harvard University Press, 1971); "Supply and Salary Adjustments to the Changing Science Manpower Market," *Amer. Econ. Rev.* (March 1975); "Legal Cobwebs: A Recursive Model of the Labor Market for New Lawyers," *Rev. Econ. Statist* (May 1975); "Labor Market Adjustments in Psychology," *Amer. Psychologist* (May 1972), p. 384-93.

[23]R. Freeman, "Supply and Salary Adjustments to the Changing Science Manpower Market," *op. cit.*

[24]American Council on Education, *The Black Student in American Colleges*, Amer. Coun. on Ed. Research Reports, vol. 4, no. 2, 1969.

The second factor easing the supply adjustment problem is the possibility of occupational mobility and other forms of adaptive responses to market incentives on the part of experienced workers. Because experienced personnel can and do alter their supply of work to various specialties while they cannot alter their past decisions to obtain education, the supply of graduates to specific occupations is much more flexible in the short run than the total supply of graduates.

Alleviating factors notwithstanding, the long working life of college manpower raises the possibility that, almost regardless of reactions to the depressed market of the 1970s, a relative surplus of college graduate workers in the population as a whole will persist for many years to come.

3. *Demand and employer behavior.* The dynamic moving force in the college job market is the demand for graduates, which depends on several basic economic forces, ranging from the structure of the economy, activities and technology in industry, and demography, to the possibility of substituting college graduates for other workers or machines. The structure of the economy is important because industries differ greatly in their relative employment of graduates, with, for example, 31 percent of workers in finance in 1970 having college degrees compared to 6 percent in the automobile industry. Whether college manpower-intensive industries are growing rapidly as in the 1960s when aerospace, the education sector, and related industries enjoyed a boom, or slowly as in the 1970s is a key determinant of the state of the market. Industrial activities and technology are important because the relative employment of graduates within industries depends on what they do and how they do it. If resources are allocated to research and development or related activities that make extensive use of education, demand for graduates will be high. Similarly, demand will also be high if, for whatever reason, new technologies are relatively educated manpower-intensive (at given factor prices). Empirically, there has been considerable variation in industrial expenditures for R&D, causing sizable shifts in demand for college graduates, especially scientific and engineering personnel. On the other hand, there has been only modest change in the intra-industrial use of educated workers within periods of, say a decade or so; even over longer periods, intra-industrial changes in employment of graduates appear to be dwarfed by shifts in the composition of industries.[25] Demography is important because the age structure and rate of growth of the population are critical determinants of the size of the educational sector, which is the single largest industry of employment for graduates.

When, as in the 1970s, the relative wages of the college trained change, the possibilities of substituting more- for less-educated workers became critical in market adjustment. If substitutions are relatively easy to make, only modest declines in salaries will suffice to increase employment and equilibrate supply/demand imbalances. If substitutions are difficult, enormous changes in salaries may be required for a surplus of graduates to find jobs.

Empirical evidence on substitutability suggests that graduates are good but by no means perfect substitutes for other inputs. In the late sixties, several studies (Bowles, Psacharapoulos and Hinchcliffe, and Dougherty) appeared to find surprisingly large "elasticities of substitution," primarily from cross-country data, which suggested that only small changes in the ratio of college graduate to other salaries would be needed to increase demand greatly. More recent work, however, indicates that, because of misspecification of the model, these studies overestimated the potential employment-increasing effect of declines in relative wages (Tinbergen,

[25] S. Dresch, "Demography, Technology and Higher Education: Toward a Formal Model of Educational Adaptation," *Journal of Political Economy*, 83 (March/April 1975) finds that only 30 percent of the increased employment of college graduates from 1929 to 1969 were associated with increased employment of graduates within industries. While Dresch finds a greater role for intra-industry changes in the 1948-69 period, the 1948 figures are biased by World War II expenses.

Layard and Fallon). A time series analysis by the author supports the latter point of view, finding sizable but by no means enormous long-run elasticities of demand for all graduates and smaller elasticities for detailed specialists such as engineers, R&D scientists, lawyers, physicists, and biologists. Moreover, much of the substitution of graduates with the less educated appears to occur in lower-level management, sales, and clerical jobs, which are of relatively low status.[26] This implies that supply/demand imbalances of the type observed in the 1970s will create underemployment problems.

4. *Cobweb and accelerator dynamics.* Two classic economic adjustment mechanisms govern the dynamics of the college job market:

First, because four or more years are required to "produce" a college graduate, the college market tends to follow the classic "cobweb" feedback system that has long been associated with the markets for corn or hogs. Like these agricultural products, the supply of graduates is determined by market conditions several periods earlier because of the fixed time delay in educational production, and is thus a lagging function of the state of the market. Such a structure generates oscillatory ups and downs, with shortages changing into surpluses every four or five years. The reason for this pattern can be readily seen. If salaries and demand are strong in a specialty in, say, 1969, many students will be drawn into the field, becoming the new supply for that field four or five years later. When they graduate in 1973, unless demand has increased commensurately, they will oversupply the market, depressing salaries and employment opportunities. With the decline in incentives in 1973, relatively fewer students will enroll in the field, causing a shortage in 1977, and so forth. Of course, other factors, notably shifts in demand, will also affect the market. What is important is that there is an underlying feedback structure tending to produce cyclic movements in the supply/demand balance. Econometric models based on the cobweb hypothesis have been quite effective in "explaining" the labor market experience of bachelor's degree engineers, law graduates, masters of business administration graduates, and graduates in other specialties in which there is a close one-to-one tie between education and occupation.

The other economic adjustment mechanism that plays an important role in the market for graduates is the "accelerator" process that is traditionally viewed as governing capital goods production. In the case of the college trained, the fact that universities hire relatively many graduates, particularly masters' and doctorate recipients, means that demand depends in part on the number of students seeking academic careers. If many seek such careers, demand for faculty and salaries and employment opportunities will improve, leading to an increase in supply and further gains in demand. The situation is potentially unstable, however, because once the number of students level off, demand for new faculty will fall rapidly, causing a decline in the number of students who consider academic careers, further reducing demand for faculty, and so forth. This feature of academia makes the market for university faculty and graduate studies graduates exceptionally vulnerable to changes in the growth of enrollments. Academia stands on a revolving ball on which you have to run to stay in place – and when you stop, you fall.

Government and Educated Manpower

To complete the story of the operation of the college job market, the role of federal, state, and local governments must be brought into the picture. Governmental policies have a sizable impact on both the supply and demand sides of the market. Scholarships and fellowships, public subsidization and tuition policies, decisions to expand or contract educational systems,

[26] See the papers cited in footnote 21.

to support students or provide grants to institutions, have and will influence the supply of graduates – not only how many people go to college but who goes as well.

On the demand side, governments affect the market directly as large employers of educated manpower and indirectly through purchases of goods and services from the private sector. Some purchases – R&D, space, defense, health services – result in direct changes in demand. Other purchases have less immediate but still real impacts by the input-output linkages in the economy and the fact that even industries that do not employ graduates, may purchase commodities from those that do. Analysis of federal, state, and local spending using the Department of Commerce Input-Output table for the U.S. economy created a Nobel Prize winning economist, Wassily Leontief. Mr. Leontief showed that dollars of public expenditures, especially at the federal level, generate more demand for college-trained workers than do dollars of private spending.

In years past, the dependence of the college market on governmental activities has had a significant destabilizing effect on the economic status of graduates. This is because federal and, to a lesser extent, state and local policies changed greatly in short periods of time, causing sudden turnarounds in demand. Federal R&D spending, for example, shot up greatly in the years surrounding Sputnik (launched in October 1957), giving a sharp spur to demand for graduate scientists and engineers; then it fell (in real dollars) equally sharply in the late 1960s and early 1970s, contributing to the market turnaround. Private R&D spending, by contrast, rose modestly throughout the entire period. Similar pronounced changes in spending are found in the health sector, in defense, and in other programs. Possibly because governments tend to overreact to problems due to the "crisis mentality" of elected officials whose time horizons are short due to the periodicity of elections, or possibly because fewer institutions are involved in the decision-making process than in private markets with many firms, governmental activities have exacerbated rather than ameliorated problems in the college market with unfortunate consequences for graduates. Governmental decisions will undoubtedly play a major role in future developments, for better or for worse.

Why the Booming Sixties Bust

Given the view of the functioning of the college job market sketched in this paper, what caused its depression in the 1970s? And what will the future bring in this area? To answer these questions, we should ask and answer another: Why was the market so strong in preceding decades, despite continual growth of supply?

Two factors appear to answer these questions and explain the state of the college job market over the entire post-World War II period. First, on the demand side, the relative position of the highly educated was maintained in the 1950s and 1960s by large increases in demand due to changes in the industrial mix of jobs, the growth of R&D, and the extraordinary expansion of the education sector. In the 1970s, all of these forces, which provided a significant upward push to the market, weakened or actually declined relative to the overall state of the economy.

The quantitative dimensions of the slackened demand are shown in Table 4 and Figure 3. The table contrasts the growth of employment in industries that hire relatively many college graduates to the growth in those that employ few; it covers both the booming sixties and the seventies. Among the industries with many graduates are federal public administration, where one in six male graduates works for the national bureaucracy; professional services, ranging from law to welfare; finance, insurance, and realty; and certain manufacturing industries, including ordnance, chemicals, petroleum, instruments, electronic computing,

aircraft, and electrical machinery; and, of course, education, which accounts for employing over half of the female college graduates and one-tenth of the male graduates. Industries that hire very few college graduates range from transportation, communications, the rest of the manufacturing industries, to agriculture.

There are two important findings in the table. First and most clear is the striking change in the differential growth between the college manpower-intensive and other sectors between 1960-69 and 1969-74. From 1960 to 1969, employment grew more than twice as rapidly industries in the college manpower-intensive than in other industries, a differential rate per annum of 2.4 percent. From 1969 to 1974, as employment in college-intensive industries increased less rapdily than in the previous decade, the sectoral growth rates became much more similar. In the seventies, the differnetial in growth was just 0.8 percent. Second, the industry data in the table (and more disaggregate figures not reported there) show clearly that employment in a wide variety of college manpower-intensive sectors slackened off in the 1970s bust. The rate of change in employment in college-intensive manufacturing, for example, which accounts over the period, while that in federal public administration fell from 2.0 percent to 0 percent. This means that the developments in the period cannot – as some have asserted – be traced solely to changes in the size of the education sector and to demographic shifts in the number of persons of school age. The rate of growth of demand for college workers decelerated relative to that for the less educated in the 1970s as a result of a more general shift in the industrial composition of employment from college-intensive to other parts of the economy.

The changing pattern of demand for college graduates is examined from a different perspective in Figure 3, which displays the proportion of GNP allocated to two key activities,

Table 4

Compound Annual Percentage Change in Employment in College Manpower-Intensive and Other Industries in Market Boom and Bust

	1960-69 Boom (percent)	1969-74 Bust (percent)
College Manpower-Intensive	4.4	2.8
Non-educational Industries	3.8	2.3
Professional services*	5.5	5.9
Federal public administration	2.0	0
Finance, insurance, and realty	3.7	3.2
College-intensive manufacturing**	3.6	-1.2
Education	6.2	3.9
All Other Industries+	2.0	2.0
National Total	2.8	2.2

Source: U.S. Bureau of Labor Statistics, *Employment and Earnings 1969-72*, Bulletin 1312-9.

*Excludes educational services.

**Ordnance, chemicals, petroleum, professional instruments, aircrafts, electrical machinery, and electronic computing machinery, with 1960 electronic computing machinery estimated.

+Agriculture included, based on data from U.S. Department of Commerce Survey of Current Business (various editions), with 1974 estimated.

R&D and education. After increasing rapidly from the early 1950s through the Sputnik era, R&D spending began to fall relative to GNP in the late 1960s and actually dropped significantly in deflated dollars in the early 1970s. The proportion of GNP devoted to education rose rapidly until the 1970s, when it fell from 8.0 percent to 7.6 percent between 1971 and 1973, a drop of similar magnitude to the fall in the R&D share of GNP. Important as it was, the slump in the education sector is by no means the primary factor in the collapse of the college job market in the 1970s.

On the supply side, there was surprisingly little net expansion in the number of college graduates relative to the work force throughout the period of rapid growth in demand. During the 1950s, the number of new college graduates fell somewhat due to the diminished size of college age cohorts, the result of falling birth rates some 20 years earlier. In the 1960s, when there were relatively many persons of college age, the enormous growth of graduate education delayed their entrance on the job market, so that the big increase in the supply of new college-trained workers did not occur until the end of the decade. Between 1958 and 1968, for example, despite a sizable increase in the number of male bachelor's degree graduates, the "net" number seeking work, defined as the number of graduates minus the number of first-year enrollees in graduate and professional schools, actually fell, relative to the total male civilian work force, to half! The sixties were a period of declining relative supply of new college workers, not – as is often thought – a period of increasing supply. In the late sixties/early seventies, by contrast, the number of college graduates seeking work increased greatly as graduate education became less attractive. Between 1969 and 1972, the net number of new B.A.s seeking work relative to the total male work force increased threefold. Estimates of the number of new B.A.s seeking work based on the fraction of graduate classes going directly to graduate school (a number that ignores the movement of older persons into graduate programs) from Allan Cartter tell a similar, though less dramatic, story. Cartter estimates that about 24 percent of college graduates went directly to graduate and professional school in the late 1950s, 41 percent in the late 1960s, and 37 percent in 1973.[27] On the basis of these figures, the relative number of new B.A.s increased by just 1.75 percent per annum in the 1960s, compared to 8 percent from 1968 to 1973. However measured, it is apparent that the supply of new college graduates did not increase until the late sixties/early seventies, which postponed the problem colleges had of adjusting to the large enrolling classes of the 1960s.

The reasons for the increased number of college enrollees and graduates deserve further attention. As has been widely noted, demographic developments, notably the sizable increase in the college-age population in the 1960s, which resulted from the post-World War II baby boom, played a major role in altering college enrollments and degrees. Between 1950 and 1970, for example, the population aged 18 to 24 increased by over 9.5 million persons – in percentage terms, a remarkable 65 percent. If all else had remained the same, this change would have substantially raised the ratio of new graduates to the total work force, creating some problems in the market for new entrants. But because enrollment ratios vary over time due to supply behavior, demographic changes do not translate into comparable changes in college enrollments or degrees. During the 1950s, when the college-age population was roughly constant, enrollments rose by 1.3 million, a sizable 60 percent gain, as the number of young choosing college rose. During the 1960s, the proportion of young choosing college and the population of choosers both increased, with a resultant doubling of enrollments and an approximately 4.0 million absolute increase in the number of college students.

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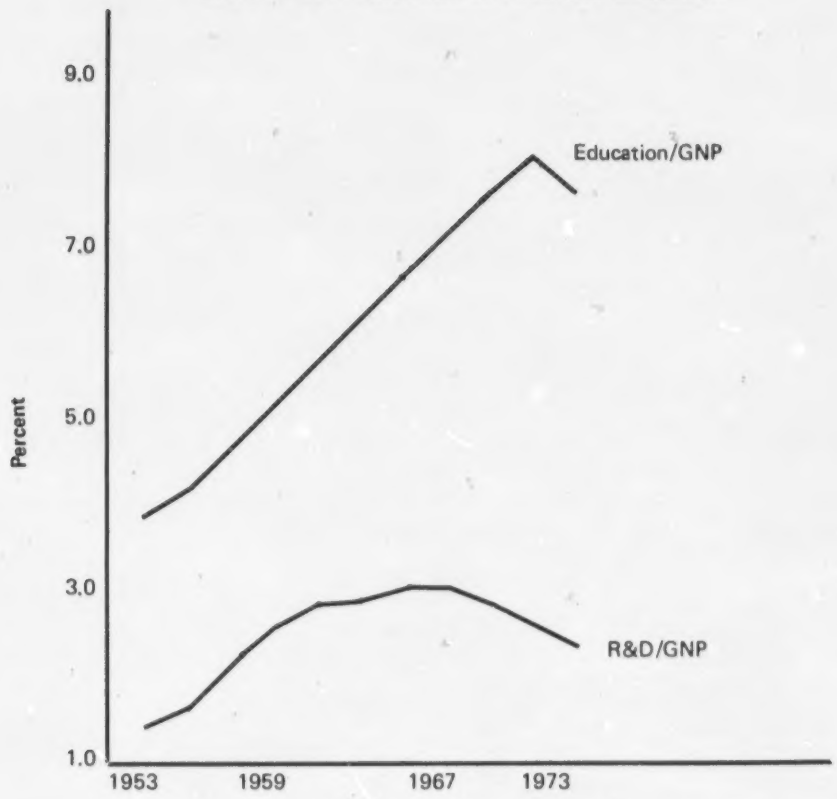
[27] R. Freeman, "Overinvestment in College Training?", Table 6. Cartters' figures are reported in Scientific Manpower Commission, *Manpower Comments* (Jan./Feb. 1975), p. 5.

Figure 3
Share of GNP Allocated to R&D and Education



Source: U.S. Office of Education, *Digest of Educational Statistics*, 1974; National Science Foundation, *National Patterns of R&D Resources* (NSF 74-304).

The relative importance of "pure" demographic factors and supply behavior in the 1950-70 growth in the number of persons in college and the supply of graduates can be evaluated quantitatively. From 1950 to 1960, *all* of the growth in the number of students in college and in the number of 25- to 29-year-old graduates in the work force is attributable to personal decision rather than to demographic factors. From 1960 to 1970, despite the demographic upsurge in persons of college age, 56 percent of the growth in enrollments and 64 percent of the growth in 25- to 29-year-old graduates in the work force were also attributable to changes in propensities to choose college.[28] In short, responsive supply behavior – of the type analyzed earlier in this essay – is equally as important, if not more important, than demographic factors in explaining the changing number of graduates entering the market.

Econometric Analysis

One way of checking on the validity of the supply-demand explanation of why the market declined in the 1970s is to estimate the impact of the change in supply and demand on the

[28]These data and analysis are taken from R. Freeman, *The Overeducated American*, Table 6.

relative earnings of college graduates and see how well it tracks the changes in earnings. The results of such an exercise are given in Figure 4, which compares the actual ratio of college starting salaries to average annual earnings with the ratios predicted by changes in supply and demand, using regression analysis. Supply is measured by the number of new male bachelor's degree graduates per male worker in the economy and demand by a fixed weight employment index of demand for graduates across industries.[29] As the figure indicates, the proposed explanation of why the 1960s boom-bust occurred does a good job of accounting for market developments, tracking the drop in relative salaries with considerable accuracy. While this does not, of course, mean that the model will yield good forecasts, it does suggest the value of using it to evaluate future possibilities and to estimate, at least tentatively, the likely length of the depressed college job market.

What the Future May Bring

How long *will* the new depression in the college job market last? Forecasts of the future economic situation of college graduates in *The Overeducated American*, based on the analysis of the operation of the market given above, suggest that the depression, rather than the buoyant market of previous decades, is likely to represent the economic future of the college job market at least through the early 1980s. Barring unforeseen increases in demand for college graduates, their relative economic status is expected to deteriorate moderately or remain at the depressed level of the mid-1970s until the end of this decade. In the mid- and late 1980s, however, the market is expected to improve, particularly for young graduates, as the supply of new bachelor's degree recipients diminishes due to the response to the depressed market and to declines in the size of college-age cohorts. In the market as a whole, the situation is expected to stabilize or improve in the mid- or late 1980s, when the total number of college-trained workers relative to the total labor force reaches an approximate equilibrium. The college share of the work force will increase until the latter part of the 1980s, despite cutbacks in relative enrollment, because of the relatively small number of retiring graduates, maintaining supply pressures until that period. The key element in these forecasts is the responsive supply behavior of young persons, whose decisions are anticipated to equilibrate the market by reducing the supply of college-trained workers. If the proportion of the young electing higher education does not, for whatever reason, change in the expected manner, the depressed market is likely to last through the late 1980s.

These forecasts, of course, must be treated cautiously. Even within the confines of the model employed, several simplifications were assayed, with uncertain (though presumably small) effects on the predictions. Tuition and scholarship payments, parental desires and ability to send children to higher education, and the differential quality of students were *not* treated in the forecasts, though they can be analyzed in succeeding work. Attention was given solely to labor market factors: wages and job opportunities. More importantly, perhaps, the track record of economists in projecting changes in the economic value of schooling is not good. Seymour Harris (1949), for example, expected the 1950s and 1960s to be decades of market glut: "A large proportion of the potential college students within the next 20 years are doomed to disappointment after graduating as the number of correlated openings (in professional jobs) will be substantially less than the numbers seeking them." Harris' expectations were falsified by the large increase in demand for graduates in the 1950s and 1960s, due, according to my analysis, to the shift in the composition of industrial employment, the spurt in R&D spending, and demographic changes that led to the expansion of the

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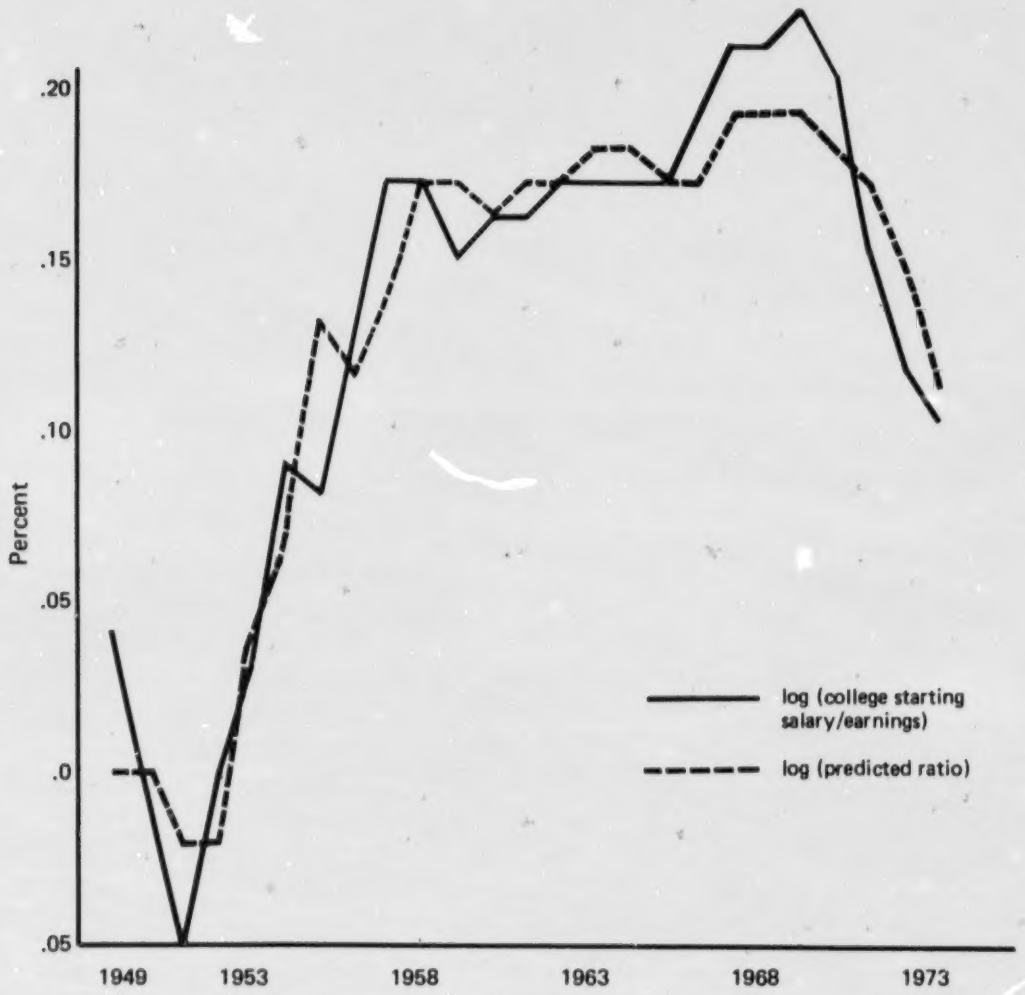
[29] For a detailed discussion of the demand indices, see R. Freeman, "Manpower Requirements and the Skill Composition of the U.S. Work Force" (NSF Conference on Manpower Forecasts, 1976). The regressions used are given in R. Freeman, "Overinvestment in College Training?", *op. cit.*

Figure 4
The Ratio of College Starting Salaries to Average Annual Earnings, Actual and Predicted



Source: R. Freeman, *The Overeducated American*, Figure 13.

education sector. Prior to the market turnaround in the 1970s, human capital economists were concerned with reasons for the stability in the ratios of the incomes of educated to less-educated workers (Griliches, 1970) and sought relatively long-term or permanent rather than temporary reasons for the pattern. Possible factors that have not been covered in this essay (technical change? substitutions due to energy and related raw materials cost increases? demand for education as a consumer good? governmental responses to the depressed market?) may invalidate the analysis.

Speculations About Social Implications

Provisos aside, if the analysis and forecasts discussed are reasonably "on target," the relation between education and the economy will be far different in the future than it has

been in the past. The economic value of formal schooling, particularly college training, will be below historic levels, with the highly educated having trouble obtaining good professional and managerial jobs and receiving diminished salary advantages over the less educated. The historic upward trend in educational attainment will come to an end as fewer young persons decide to go on to college. The educational sector will contract and retrench after decades of general expansion.

What are the likely impacts of these types of changes on a society that has traditionally made education a major route for economic progress and social mobility? How will the "overeducated society" of the forseeable future differ from societies in which education is a scarcer resource? The declining economic value of education can be expected to have far-reaching direct and indirect impacts on the functioning of the economy and the social system. It is likely to alter the degree and form of social mobility, the distribution of income, the rate of economic growth, and the link between school and work. In addition, the spirit or ethos of the "overeducated society" may differ significantly from that of the recent past.

Social Mobility and Income Distribution

Paradoxically, perhaps, the fall in the economic value of human capital is likely to have opposite effects on the extent of social mobility and distribution of incomes. With respect to mobility, the drop in the material rewards to education and in the fraction of persons choosing the investment implies the virtual end of education as a means of upward mobility in society as a whole. A larger number of families than in the past will experience downward generational mobility, with young persons obtaining less schooling than their parents. Individuals and society will presumably search for alternative routes of mobility. In-house company training and promotion policies may possibly become more important than in the past.

The reduced role of schooling in social mobility could, depending on the type and efficacy of alternative routes of upward movement, lead to greater class consciousness and conflicts. With the potentiality reduced of moving from one social stratum to another by formal education, individuals may accord greater "loyalty" to their social group. More generally, if, as some believe, education has been a "safety valve" for social stability as it was alleged to be years ago, the tightening of the valve could remove an important foundation stone of political stability.

At the same time, however, the income distribution is likely to become more equalitarian as a result of the relative surplus of the educated. With the number of persons having various levels of education fixed, reductions in the economic value of human capital will necessarily create more equality in labor incomes. With the number going to college falling relative to current levels while the total number of graduates continues to increase, the situation becomes more complex, for distribution depends not only on wage differentials but on the number of persons in various categories. While detailed calculations are needed to pin down the impact, in all probability overeducation will diminish inequality in incomes among workers. This could ameliorate or counterbalance the deleterious effects of the reduction in mobility.

Economic Growth

Unless new areas of investment are found to replace education, the growth rate of the economy will slacken in the period of overeducation. In the context of standard growth accounting (Denison, 1974, and Griliches, 1970), which makes the effect of a factor on

growth depend on its share of income and rate of change, the lower education premium and diminished flow of new college guarantees implies a smaller increase in the share of the educated in both income and the work force than in the recent past. As a result, the once sizable contribution of schooling to increases in income per head – estimated to be about 0.42 percent per year or 20 percent of total growth (Denison, 1974) – will drop greatly.[30]

Schooling and Work

The decrease in job opportunities and the worsened occupational structure will surely create a sizable group of dissatisfied educated workers, whose positions will be incommensurate with their training and plans. The way in which they adjust to the new status of the educated and the way in which society, particularly employers, adjust to their position will be critical factors in the social fabric of the overeducated society. Lacking the competitive market option of quitting one job for a better job, because of the weak market, the highly educated in noncollege-type jobs may resort to political protest and related "voice" modes of expressing discontent. However, many may come to accept a sharp break between schooling and work, viewing their education more as an item of consumption than as an investment activity. Whether those with dashed aspirations will accept the new reality or seek to change it may turn out to be a major determinant of the political future.

On the demand side, employers can be expected to alter the tasks and design of work to use the newly available educated workers most efficiently. Changes in the nature of work could reduce the blue-collar/white-collar division, permitting greater upward mobility at work places to those with the requisite education and producing greater autonomy and responsibility in nonprofessional, nonmanagerial jobs. It could also, however, lead to lowered work effort and greater concentration on nonwrok leisure activities, with jobs reorganized to reduce "disutility" by requiring less time rather than less undesirable tasks. A major burden will be placed on employers to adjust to a new source of labor for noncollege-level jobs.

The Educational System

The educational system will face especially severe pressures and problems in the over-educated society. There will be the difficulties of adjusting to a period of decline with institutions forced to seek new clientele, such as older persons, and to alter their "product" in increased market demands. On campuses, one can expect two divergent patterns: among those who continue to use schooling as a route for economic advancement, there will be great seriousness and specialization in occupation-oriented fields, along the lines previously indicated in Table 3; among those who see little chance of their interests yielding salable skills, there will be a concern solely with the consumption aspects of education, possibly on a part-time basis. Because job opportunities will be especially limited in the education sector itself, many graduate programs will undergo a major reorientation, from the preparation of teachers to the preparation of business and government employees, which will require changes in the content and subjects taught. Such changes in orientation, however, are unlikely to come smoothly as the traditional mode of adjusting the distribution of faculty to new educational needs – by new hires – will be seriously hampered by no-growth or declining-growth conditions. Substantial attacks on the major rigidity in the educational system, *i.e.*, tenure, are to be expected, though with uncertain prospects for success. Finally, because the high prestige attached to education and "high-level" jobs is at least partly due to high salaries, the overall social value given schooling is likely to fall in the period of overeducation. Contrary to John Kenneth Galbraith, the "scientific-educational estate" will face hard times in terms of prestige, income, and power, because it will no longer be a very scarce commodity.

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[30] E. Denison, *Accounting for U.S. Economic Growth 1929-69* (Washington, D.C.: Brookings Inst., 1974) pp. 136-177.

Response of the State and Body Politic

How will the political system respond to an overeducated society? There are several possible governmental reactions to a continued depression in the college job market. On the one hand, governments may try to increase demand for graduates through initiation of special programs, and to help financially hard-pressed institutions survive a difficult period by increasing governmental subsidies. One reaction to the surplus of teachers might be to go in seriously for early childhood education or to place greater emphasis on the consumption component of college education. Through the political system we could opt for a society that is overeducated in relation to the labor market rather than one that is "undereducated" in relation to human potential. On the basis of the responses of individuals to the depressed market of the 1970s and the federal fellowship cutbacks, however, these possibilities seem unrealistic. It is more likely, I believe, that the government will, if anything, overreact to the market depression by reducing support for the college and university systems.

Ethos and the Overeducated Society

A society in which education has greatly reduced economic value and is no longer a highly desirable activity is likely to have a very different spirit from traditional societies where education is a valuable, scarce resource. On the positive side, there may be a substantial decline in formalistic use of schooling as a credential or screening device. New roles will be filled by educated persons and the structure of economic achievement and progress will be less closely tied to classroom performance than in the past. Some of the social distinctions between college graduates and other persons are likely to decline, especially if relatively many persons from better family backgrounds choose alternative life patterns. Individuals are likely to seek out new routes for socioeconomic progress with potentially fruitful outcomes, depending on the form of institutions created. On the negative side, the failure of relatively many educated persons to achieve their career goals, and the possible failure of others to find ways of improving their position outside the educational sector, could produce a discouraged and disgruntled attitude among a large share of the population, with potentially dangerous consequences.

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